

Remarks

This amendment is accompanied by replacement and annotated Formal Drawing sheets and by the above-mentioned request for extension of time. The Drawing has been amended as requested by the Examiner. The Specification has been editorially amended. Claims 42, 44 and 45 have been amended to change the phrase “hollow cathode system” to “cathode system”, and claim 46 has been amended to remove the word “ceramic”. Claims 46 and 50 have also been editorially amended to recite that the leading edge of the ceramic tube “is in line with the center of the magnet”. Antecedent basis for this latter amendment can be found in the Specification at, e.g., page 23, lines 1 – 3. Following entry of this amendment, claims 41 – 50 will be pending in this application. Reconsideration of the rejections is requested in view of the following remarks.

Rejection of claims 42 – 46 under 35 USC §112

Claims 42 – 46 were rejected under 35 USC §112, second paragraph as being indefinite for reciting a “hollow cathode system” in claims 42, 44 and 45 and for reciting a “ceramic” tube in claim 46. These claims have been amended to overcome this rejection. Applicants accordingly request withdrawal of the 35 USC §112 rejection of claims 42 – 46.

Rejection of claims 41 – 45, 47 and 48

Claims 41 – 45, 47 and 48 were rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 5,464,667 (Kohler et al.) in view of U.S. Patent No. 4,954,371 (Yializis). The Office Action states, *inter alia*, that:

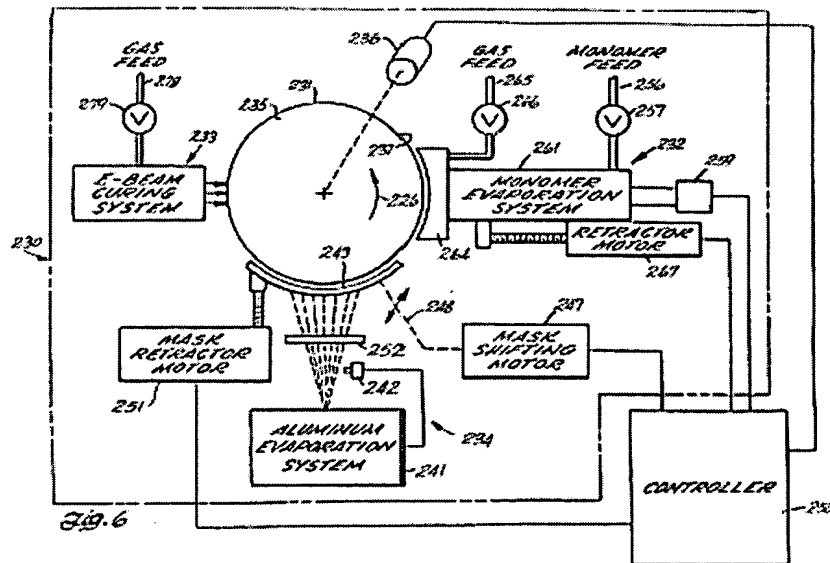
“Kohler fails to teach an oil delivery system”

Applicants agree. However, the rejected claims recite not only an oil delivery system but also its position “relative to the cathode system such that the vaporized organic material and the plasma interact prior to, or upon contact with, the substrate”. This permits the plasma to act upon the vaporized organic material prior to or upon contact with the substrate, and permits the vaporized organic material to interact with the feed gas if present. This facilitates certain desirable predeposition effects and certain desirable completed article features discussed at, e.g., page 5, lines 9 – 26, page 10, lines 9 – 23 and in Examples 7 and 8 at page 48, line 4 through page 50, line 4.

The Office Action also states that:

"Referring to Figures 5 and 6 and column 5, lines 3-10, 36-48, col. 8, lines 67 - col. 9, lines 10, and column 11, lines 29-36, Yializis teaches that it is well-known to provide a vaporization apparatus 110, 261 (oil delivery system) with a plasma generation apparatus 233. The oil delivery system includes an atomizer 115 for forming droplets, a vaporization chamber 116, and a nozzle structure 118 for delivering the vapor to the chamber 123. Various materials are selected for the oil delivery system such as natural oils or silicone. After the oil delivery system provides the vapor material to the chamber 123, the plasma generation apparatus 233 provides radiation curing to the material and thus yields a crosslinked coating on the substrate."

Yializis does not provide a "plasma generation apparatus 233". Yializis' item 233 is an e-beam cure system, not a plasma generator:



Moreover, Yializis' cure system 233 does not act upon the vaporized monomer until well after the monomer reaches the target substrate. In the apparatus shown above, this occurs one-half revolution after the monomers reach drum 235. Also, Yializis does not employ an anode or a cathode. The Office Action has not indicated where in Yializis there is any teaching regarding positioning an oil delivery system relative to a cathode, let alone positioning such a system and cathode so that vaporized organic material and a plasma interact prior to or upon contact of the vaporized organic material with a substrate.

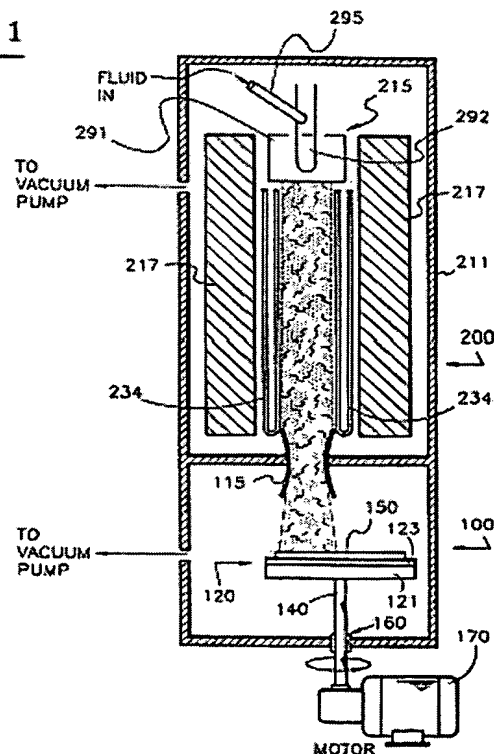
Applicants accordingly request withdrawal of the 35 USC §103(a) rejection of claims 41 – 45, 47 and 48 as being unpatentable over Kohler et al. in view of Yializis.

Rejection of claims 46 and 50

Claims 46 and 50 were rejected under 35 USC §103(a) as being unpatentable over Kohler et al. in view of Yializis and U.S. Patent No. 5,342,660 (Cann et al.). The deficiencies of Kohler et al. and Yializis are discussed above. Combining Cann et al. with these references would not make claims 46 or 50 obvious. These claims as amended recite a “tube having a leading edge ... positioned inside” a cylinder and “recessed such that the leading edge of the tube is in line with the center of the magnet”. This positioning can provide a plasma that is sustained, concentrated, cone-shaped or strong, as discussed at page 22, line 25 through page 23, line 3.

Cann et al. surround a cylindrical anode **291** with a magnet **217**, and flow a plasma past cooling coils **234** and through nozzle **115**:

Fig. 1



Cann et al. does not position a leading edge of a tube in line with the center of a magnet. In fact if Cann et al.'s nozzle **115** is taken to be the tube, it lies outside the rest of the plasma

generation device, and is not positioned inside a cylinder or recessed. The Office Action has not indicated where in Kohler et al., Yializis or Cann et al. there is any proper combination that would suggest or make obvious rejected claims 46 and 50. Applicants accordingly request withdrawal of the 35 USC §103(a) rejection of claims 46 and 50 as being unpatentable over Kohler et al. in view of Yializis and Cann et al.

Double Patenting Rejection of claims 41 – 44, 47 and 48

Claims 41 – 44, 47 and 48 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 15, 16, 18 and 19 of Kohler et al. in view of Yializis. This rejection should be withdrawn for the reasons like those indicated above with respect to the rejection of claims 41 – 45, 47 and 48. Applicants accordingly request withdrawal of the double patenting rejection of claims 41 – 44, 47 and 48 as being unpatentable over claims 15, 16, 18 and 19 of Kohler et al. in view of Yializis.

Conclusion

Applicants have made an earnest effort to resolve all issues. The cited references do not provide an article having the features recited in rejected claims 41 – 50. The double patenting rejection should be withdrawn. Issuance of a Notice of Allowability is requested. If any questions remain unresolved, the Examiner is encouraged to telephone the undersigned attorney at 612-331-7412.

Respectfully submitted on behalf of 3M Innovative Properties Company,



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